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December 10.

SIR W^M. R. HAMILTON, A. M., President, in the Chair.

John Herbert Orpen Esq. was elected a member.

Professor Mac Cullagh presented two papyri, the gift of George James Knox, Esq. by whom they were lately brought from Upper Egypt.

RESOLVED,—That the Council be directed to take the proper steps to unrol and preserve the papyri.

Mr. Ball read a paper entitled “Description of the *Cydidippe pomiformis*, Patterson, (*Berœ Ovatus*, Flem.,) with notice of an apparently undescribed Species of *Bolina*, also found on the Coast of Ireland.” By Robert Patterson, Esq., Member of the Natural History Society of Belfast.

The author referred to a paper of his published in the Edinburgh New Philosophical Journal for January 1836, giving some account of a tentaculated *Berœ*, taken in abundance by him at Larne Lough, County of Antrim, in the Spring of 1835. He then noticed the occurrence, on different occasions in 1836-7, of a *Berœ*, exhibiting a peculiar ramiform arrangement of whitish internal vessels, branching off from near the lower part of the stomach to the several bands of cilia; and detailed the observations by which he was enabled to identify this with the *Berœ* described in *Mem. Wer. Soc.*, vol. iii. p. 400, by Fleming,—the tentacula having escaped the notice of that writer, from the specimen he examined having been in an exhausted state when these organs were retracted within the body. The presence of the tentacula removes the animal from the Genus *Berœ* of Fleming, to the *Pleurobrachia* of the same author (*Cydidippe Eschs.*) and as the specific name *Ovata*, under which it was described in the *Hist. of Brit. Animals*, has been applied to

a different species, Mr. Patterson proposed that it should be designated as the *Cydippe pomiformis*.

The disappearance of the internal ramiform vessels was next noticed, and the steps by which the writer was enabled to ascertain that the species now brought forward was identical with that described by him in 1835; and consequently, that a *Berœ*, of the occurrence of which we have no record, except of one individual taken in 1820, was abundant on the Irish coast. Particular reference was made to Doctor Grant's paper (*Zool. Trans.* vol. i. p. 9,) on *B. Pileus*, with a view to indicate the several points of agreement and of difference between these, the only two British species of tentaculated *Berœs*. The structure of the *Cilia*, the aqueous currents at their base, the position and structure of the tentacula, the food of the *Berœ*, its vitality, consistency, want of phosphorescence, movements, iridescence, times of appearance, and diffusion round the coast, formed the principal topics embraced in the remainder of the paper.

The occurrence of the *Bolina* on different parts of the Irish coast was mentioned, principally for the purpose of enabling Mr. Patterson to refer to some points of its economy for comparison and contrast with the *C. pomiformis*. He reserved a detailed account of various particulars concerning it to a future opportunity, when he expected to be able to exhibit additional figures taken from living specimens, and more accurately delineated than those at present brought forward. Meantime, as the animal differed from the two species of *Bolina* described by Mutius, he proposed to name it provisionally *Bolina Hibernica*.

The President read a paper by the Rev. Dr. Robinson "on the Longitude of the Armagh Observatory, given by Chronometers and other Methods."

After remarking the inconveniences, or uncertainties, which to a certain extent attend the methods of determining

differences of longitudes by signals, geodetic measures, occultations, and transits, the author passes to the most direct and natural method, by transport of chronometers. He says, "the determination by chronometers depends on the perfection of these machines, and in particular on their rate being unchanged by the agitation of a long journey. This, strictly speaking, is never the case, though it is sometimes very nearly accomplished, and its effect will disappear from the mean of the results obtained in going and returning, if the circumstances of the two journeys are nearly similar. Unfortunately it rarely happens, that an astronomer has the power of making these experiments on a sufficient scale: but such an opportunity seemed to Sir William Hamilton, and myself, to present itself in consequence of Mr. Dent's chronometric visit to Paris, and the yet more remarkable notice, read at the Newcastle Meeting of the British Association, of the chronometric longitude of Sir Thomas Brisbane's Observatory. Mr. Dent not merely promised us every assistance, but when, having obtained the consent of the authorities of our respective observatories, we proceeded to make the necessary pecuniary arrangements, he treated the matter as one of science, not of commerce, and not only took on himself the expense and risk of the journey, but came in person."

Dr. Robinson proceeds to mention the particulars of the journey, and of the comparisons which were made with the fifteen chronometers which Mr. Dent brought with him. Their rates and errors, as compared with Greenwich time, had been determined, before starting, for the epoch of the 20th of September, 1838; they were compared with Dublin time, in the observatory of Trinity College, on the 22nd of that month, and with Armagh time on the 23rd and 24th; were again examined in Dublin, on the 25th, and in Greenwich, on the 27th of September.

The fundamental formulæ employed by Dr. Robinson are the following :

$$\begin{aligned} L &= E - w + R I; \\ L &= E' - w' - R' I'; \end{aligned}$$

L being the difference of longitudes between an eastern and a western station; E the correction of a watch when leaving the eastern, and w the correction when arriving at the western, while w' and E' are the corrections when leaving the latter and returning to the former respectively; I, I' , the intervals of time expended in thus going and returning; and R, R' , the losing rates corresponding. By supposing $R' = R$, he obtains what he considers the true *travelling rate*, namely,

$$R = \frac{(E' - w') - (E - w)}{I + I'};$$

and the resulting longitude

$$L = \frac{1}{2} \{ E' - w' + E - w + R(I - I') \} .$$

The errors are then examined to which these determinations are liable, and the numerical elements are given, from which are deduced fifteen values for the longitude of Armagh, varying between the extremes $26^m 34^s, 67$, and $26^m 36^s, 32$, and giving as their general mean, $26^m 35^s, 44$, with a probable error less than $0^s, 1$.

Eclipses and occultations had given $26^m 35^s, 47$; lunar transits, $26^m 35^s, 64$; and a few comparisons, made under unfavourable circumstances with a single pocket watch, constructed by the late Mr. Sharp, had appeared to give $26^m 35^s, 09$. On the whole, Dr. Robinson is not inclined to change the quantity which he gave some years ago to Mr. Stratford, for insertion in the Nautical Almanac, namely,

$$+ 26^m 35^s, 50.$$

as the west longitude of Armagh from Greenwich.

The same chronometric comparisons appear to require that the value of the longitude of the Dublin Observatory,

as last determined by Dr. Brinkley, namely $+25^m 22^s, 0$, should be diminished by about a second.

The Rev. Dr. Drummond read "An Essay on the Structure of English Verse, by the Rev. William Bruce, D. D."

This Essay enters into a critical examination of the constituent parts of English verse, commencing with its simplest elements, and following them up through their various combinations. As the melody of a language must depend on the classes of letters in which it most abounds, the poet should introduce as many vowels and liquids as possible; availing himself of those sounds which are most agreeable to the ear, and avoiding those which are guttural and harsh, unless when the latter may be more expressive in making the sound an echo to the sense. A propensity to imitative sounds appears through the whole of our language, and, in general, English has an advantage over the ancient languages, so far, at least, as expression depends on the termination of words.

The next element of verse is the *syllable*; and this must be considered as to quantity and quality. According to quantity, syllables are long or short; as to quality, smooth or rough. Accent affects particular syllables or letters, and the quantity or length depends on the manner of pronouncing the vowel, and on the number of consonants following it; for every consonant that is sounded must require some additional time. Whether the structure of English verse depends on quantity or accent, has long been a subject of controversy, and able critics are found on each side of the question. Sheridan affirms, that we have a peculiar advantage in having two sets of feet, the one depending on quantity, the other on accent. After all, it is little more than a dispute about words; accent alone will constitute verse, and there can be no verse without it; in fact its power is such, that we can hardly deny it to be the governing principle of

English versification. Our accent is different from that of the Greeks and Romans : ours lays more *stress* on vowels or syllables, theirs consisted in a depression or elevation of the voice ; ours produces the effect of quantity, theirs was entirely distinct from such an effect.

Another stress of the voice, which has great influence on verse is, EMPHASIS, *i. e.* stress with expression. As accent is the ligament of a word, emphasis is the ligament of a sentence. It combines and points out the words which express a sentiment ; and is produced by a change of tone adapted to the emotion which the sentiment inspires, not always elevated, but often (perhaps generally) low. The quantity of a syllable will often depend on emphasis ; and hence it follows, that every composer of modulated prose or of verse, should be a good reader, or at least a good judge of reading, for if he read with one idea of accent and emphasis, and his lines are afterwards recited with a different one, it is plain that the metre will be spoiled.

An essential constituent part of verse is the foot. Our verse consists of feet, and not merely of a determinate number of syllables. The *iambus* is the foundation of English heroic verse, but other feet are admissible in particular places ; and though the heroic line is said to consist of ten syllables, it often comprises many more. This foot was also the essence of the verse of the ancient tragedy and comedy, being best adapted to dialogue according to Horace,—*alternis aptum sermonibus*. It would seem, therefore, that the ancient drama is peculiarly fit for exact translation into English.

The excellence of verse consists, like that of beauty, in uniformity and variety. It supposes a regular order and recurrence of sounds ; but if these be too uniform, it becomes tiresome,—if continually broken, the metre is confused.

The PAUSE is to be regarded as indispensable to the structure of verse, particularly the cæsural and the final

pause,—the former in the middle, the latter at the close of the line. The former does not always divide the line into two equal parts, but may be varied according to the taste of the writer; and in one line may be several pauses, though one is generally stronger than the rest.

In Latin, the *cæsural* pause is after the second foot; but in English, the taste of the poet is shown in changing its place. Expression often requires a deviation from rule, but care must be taken that the pause shall coincide with the sense, or even help,—certainly not mar it.

The difference between prose, verse, and poetry, is examined and explained at some length. They all consist of long and short, accented or unaccented syllables. Dionysius of Halicarnassus, and in our own day, Bishop W. Cleaver, could find a certain order of feet in Demosthenes and Isocrates. The *rythm* of prose is unfettered, that of verse confined within a certain number of feet. To this, poetry adds poetical diction and figures. Verse, in the opinion of the author, is essential to poetry. There may be verse without poetry, but no poetry without verse; and according to this decision, neither Fenelon's *Telemachus*, nor Macpherson's *Ossian* is to be considered as genuine poetry. In this, every thing should be animated and impassioned; not a single prosaic expression should be admitted into short poems; and if in long epic and didactic poems some indulgence to such expressions be allowed, it should be compensated by the greatest attention to melodious versification. With respect to the propriety of introducing the *Alexandrine* into heroic verse, there is a difference of opinion. Johnson condemns the practice, as violating the principle of verse; but Dryden, who understood the subject better, says, "Spencer gave me the boldness to use the *Alexandrine*. It adds a certain majesty to the verse, and stops the sense from overflowing into another line. I have frequently used the triplet rhymes, because they bound the sense, and therefore

I make the last verse of the triplet a Pindaric, (that is an Alexandrine,) for besides the majesty it gives, it confines the sense within the barrier of three lines, which would languish if lengthened into four."

After quoting the opinion of Dr. Johnson, of Dryden, and of a writer in Number XIV. of the Classical Journal, respecting blank verse, the author gives his own, and commences by stating it as necessary to the perfection of any art, that it should be difficult, *χαλεπα τα καλα*, and that the greater the difficulty, within certain bounds, the more excellent will be the execution. The facility of writing blank verse presents such a temptation to run out into long declamatory sentences, that it seldom gratifies the ear, except in some select passages, where the poet is inspired by the beauty of the subject. In rhyme the style is neater and more condensed; the figures and images are more approximated, and the impression more lively and vigorous. Variety in blank verse is often, perhaps generally, indulged even to extravagance, while uniformity is the reproach of rhyme.

The author maintains that the heroic hexameter of the ancients is incompatible with our language; and concludes with a variety of miscellaneous observations. An appendix is subjoined, containing notes and examples illustrative of facts and opinions occurring in the Essay.

The Secretary read the original Resolution of the Academy, by which the President of the Royal Society is an Honorary Member, and likewise, the resolution of Council of the 3rd of December, relating thereto.

It was ordered that the Diploma now read be engrossed on vellum, and transmitted to the Marquess of Northampton, President of the Royal Society.

The Academy then adjourned to the 14th January.

DONATIONS.

Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. Par MM. les Secretaires Perpetuels. Second Semestre. No. 19, 20. Presented by the Academy.

Statement of the Receipts and Payments of the Royal Society, between Nov. 29th, 1837, and Nov. 29th, 1838. Presented by the Society.

Two Papyri, brought from Thebes in Upper Egypt, by George James Knox, Esq. Presented by Mr. Knox.

January 14, 1839.

SIR WM. R. HAMILTON, A. M., President, in the Chair.

Major Henry D. Jones ; Charles E. H. Orpen, M. D. ; Thomas Andrews, M. D. ; P. M. Murphy, Esq. ; Rev. James Wills ; Richard Palmer Williams, Esq. ; and Thomas Grubb, Esq., were elected Members.

His Grace, the Archbishop of Dublin, V. P., having taken the Chair *pro tempore*, the President communicated to the Academy the first part of his researches on the Dynamics of Light.

William Bald, Esq., Civil Engineer, read a paper entitled "An Account of the Survey and Map of the County of Mayo."

The author commenced by giving a brief account of the origin and progress of the construction of topographical maps in Europe. In modern times, the first attempt at the construction of topographical maps may be dated from the seventeenth century, and was due to the Swedes. Under Charles the Ninth, a surveying department was organized, placed